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THE ADVERSE EFFECTS OF NOCTURNAL HYPERTENSION ON ARTERIAL STIFFNESS AND URINARY ALBUMIN EXCRETION IN HYPERTENSION

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Background: Both blood pressure (BP) non- dipping and nocturnal hypertension have been associated with accelerated target organ damage (TOD) in subjects with hypertension. However the combination of a nocturnal BP reduction within the range of the dipping profile with increased absolute nocturnal BP values has never been investigated as regards TOD. We investigated the relationships of nocturnal BP with indices of vascular and kidney damage and inflammatory activation in dipper hypertensive subjects.

Methods: We studied 402 subjects with stage I -II, newly diagnosed essential hypertension. According to two 24h ambulatory BP recordings and our exclusion criteria 127 dipper subjects were selected and subdivided in nighttime hypertensives (NH, n=75) (nighttime BP ≥120/70) and nighttime normotensives (NN, n=52) (nighttime BP <120/70mmHg). All the participants underwent echocardiographic examination, pulse wave velocity (PWV), albumin to creatinine ratio (ACR), metabolic profile and high sensitivity C- reactive protein (hs-CRP) assessment.

Results: NH compared to NN dippers had higher c-f PWV (by 0.9 m/s, p<0.0005), higher ACR values (by 20.1 mg/g, p=0.01) and hs- CRP levels (by 1.5 mg/L, p<0.0005). In simple bivariate correlations and in multiple regression analysis models incorporating as independent correlates 24h or daytime or nighttime systolic BP it was revealed that night BP was correlated to a higher degree with c-f PWV (R square = 0.295, 0.309 and 0.314 respectively), ACR (R square = 0.404, 0.384 and 0.431 respectively) .

Conclusion: Nighttime BP is associated more closely with c-f PWV and ACR than daytime and 24h BP. Moreover dipper nocturnal hypertensives compared to dipper nocturnal normotensives exhibit a worse profile regarding c-f PWV, ACR and hs-CRP.